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TASK 1304  
cc: Leslie

# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office  
P.O. Box 45155  
Salt Lake City, UT 84145-0155  
<http://www.blm.gov>



IN REPLY REFER TO:

3590  
UTU-0122694  
(UT-923)

CERTIFIED MAIL--Return Receipt Requested

NOV 07 2008

Mr. Bob Davis  
Ziegler Chemical and Mineral Corporation  
Star Route Little Bonanza  
Vernal Utah, 84078

Re: Partial Mine Plan Modification Approval, Federal Gilsonite Lease UTU-0122694 Tom Taylor #4 Shaft

### PARTIAL MINE MODIFICATION PLAN APPROVAL

**Background-** The Bureau of Land Management (BLM) Utah State Office, received your mine plan modification on September 26, 2008 for the addition of the Tom Taylor #4 shaft facilities. This shaft will be located about 1000 feet NW of the existing Tom Taylor #3 shaft. The existing facilities at the Tom Taylor #3 site will be utilized for the Tom Taylor #4 site. The location may intersect some old workings and this is why drilling has also been proposed prior to sinking the shaft.

**Approval-** The mining plan modification is partially approved to mine and place facilities onto Federal Gilsonite Lease UTU-0122694 at the location specified in the mining plan modification. You are also approved to drill 2 vertical holes in the vein at the shaft location prior to commencing shaft sinking operations. Final approval will be reserved until the results of the drilling are known.

**NEPA-** This action has been analyzed in an environmental assessment EA-USO-09-001. A Finding of No Significant Impact was made based on the analysis.

**Bond-** The Lessee has a \$136,000 bond in place. It appears that this is sufficient bonding to cover the liabilities for reclamation, rentals and royalties for BLM. BLM may adjust the bond amount at any time.

**Notice(s)-**

1. Any exploration or additional activities not included in the Mine Plan Approval must be approved by the BLM prior to commencement.

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2. Should mining conditions warrant a change to your mine plan approval (mining and reclamation plan), you must submit, in writing a request for modification to the Utah State Office (attn: Mr. Stan Perkes) and receive a written approval prior to conducting the proposed modification(s).
3. This approval does not constitute any other additional approvals necessary by agencies other than BLM.

#### **Conditions of Approval.**

1. **Drilling Results:** Zeigler must submit a report on the drilling results to BLM prior to commencement of shaft sinking operations. The report must address the thickness of the barrier pillar, the location of any workings that may have been uncovered and the quality of the air if a void is found. If the mine plan needs to be revised due to the situations found in the drilling the report must address what changes are necessary. This can be submitted as a minor modification.
2. **Archeological Findings:** The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials and contact the Authorized Officer (AO) and the Vernal (Green River) District Manager. Within 5 working days the VDM will inform the operator as to: Whether the material appear eligible for the National Register of Historic Places.

The mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary).

A time frame for the VDM to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the VDM are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with the process, the VDM will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The VDM will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the VDM that the required mitigation has been completed, the operator will then be allowed to resume construction.

3. **Waste Rock:** Waste rock will be stored in such a manner as to prevent escape of the material by wind and erosion.
4. **Gilsonite Retention:** A method of gilsonite retention shall be constructed on the low side of the shaft and ore bin to contain any gilsonite particle movement by rain waters. This can be constructed from straw bales or other suitable materials. Any method of retention must be maintained. Material that is retained must be cleaned up as part of the reclamation effort.
5. **Reclamation:** All reclamation shall be in accordance with the reclamation plan. If there is a conflict between the plan and the stipulations, the stipulations will prevail.

- a. Concrete Seals. Final designs shall be submitted and reviewed by BLM prior to seal construction. The collar and other structures shall be removed. The final concrete seal over openings that penetrate the surface must conform to the following:
  - i. Bed Rock – If the seal is to be in an exposed rock outcrop, the top of the seal shall be constructed as to conform with the contour of the outcrop as to blend in the surround rock out crop. The bottom of the seal shall sit on bedrock.
  - ii. Soil Area-If the seal is to be in an area where soil will cover the shaft seal, the top of the seal shall be placed in bedrock a minimum of 2 feet below the top of the reclaimed soil.
  - iii. Other – Upon abandonment, all equipment shall be removed and all contours shall approximate the original contour except for the main road which shall be left in-place. All waste rock shall be dumped into the shaft or contoured if there is sufficient top soil to cover the rock. All material in retention ponds shall be removed. The stockpiled topsoil shall be spread and a seeding plan shall be submitted and approved by the AO prior to finalizing reclamation. All materials left in the mine shall be reported to the “AO prior to removal of the ability to descend down the shaft via the hoist and bucket.
6. **Ground Water:** Should groundwater be encountered of greater than 5 gallons per hour in the subsurface during the mining of Gilsonite, Ziegler shall contact the mining Engineer at the Utah State Office (801-539-4036) and the Vernal District Office hydrologist or Geologist (801[435] 784-4400) within 24 hours of the ground water flow and report the following conditions.
  - a. True vertical encountered depth.
  - b. Subsurface location at which it was encountered
  - c. The approximate flow rate into the mine
  - d. Association of flow with any major geologic features such as a fault or fracture surface.

Based upon this information, the AO will determine if the lessee will be required to monitor the effect of the flow into the mine on any nearby wildlife, or stock wells. If such well are affected, the AO may require the lessee to supply replacement water to the affected stock or wildlife ponds.

All groundwater flows shall be sampled and analyzed for major cations, anions, total dissolved solids, pH, and total suspended solids. Besides these analyses the lessee shall follow the rules and regulations of the State of Utah pertaining to the sampling parameters for pollutants and surface effluent discharges from the proposed gilsonite mine (Utah Administrative Code, August 4, 1995, T 317-1.2: General Requirements: R317-8.3: Application Requirements (for a UPDES Permit: R317-6-2: Ground Water Quality Standards). Results from these analyses and sampling parameters for pollutants as required by the State of Utah shall be proved to the ‘Vernal District Office Hydrologist (Vernal District Office, 170 South, 500 East, Vernal, Utah, 84078) and Utah State office, Mining Engineer (P.O. Box 45155, Salt Lake City, Utah 84145-0155) within 30 working days of encountering the water.

Standard Stipulations on the Mining Plan Approval:

### Gilsonite Lease Stipulations

7. **Surface Pillar:** As approved by the AO prior to mining, the lessee shall be required to leave a surface pillar of sufficient size to protect the surface or to blast the openings closed to insure future surface stability and allow for final reclamation of the area for safe use.

8. **Paleontology:** Before beginning any surface disturbing activities within the boundaries of the leased lands, the lessee may be required by the AO to conduct an assessment of paleontological resources if the Duchesne River, Uinta, or Green River formations are exposed on the surface of the leased lands. An assessment includes a search, conducted by a qualified paleontologist, of information on file at museums, universities, and/or geological surveys, and if necessary a search of published and unpublished literature. A subsequent field survey for paleontological resources may then be required, in accordance with BLM Handbook 8270-1. The paleontologist shall report any discoveries of significant fossils and recommend mitigation measures in an acceptable report to the AO. Costs of assessment and mitigation shall be borne by the lessee.

If the lessee discovers a vertebrate fossil(s) during operations under the lease, the lessee shall immediately notify the AO and avoid disturbing the fossil(s). Within 2 working days after the discovery of a fossil(s), the AO or a qualified paleontologist shall evaluate the discovery. Any scientifically significant fossils (all vertebrate remains, tracks or traces, and other fossils identified on a case-by-case basis) shall remain the property of the United States government and must be collected by a qualified paleontologist for storage in a suitable repository.

9. **Royalty Value of Un-Mined Gilsonite:** The lessee shall pay the value of the royalty due on any gilsonite which would have been produced/recovered under the approved mine plan, which is otherwise lost or left economically inaccessible by mining practices/techniques, unless approval for leaving the gilsonite has been granted in writing by the AO prior to the mining.

4. **Waste Certification:** The lessee must provide upon abandonment, transfer of operation, assignment of rights, prior to reclamation activities and lease relinquishment, certification to the lessor that, based upon a complete search of all the records for the lease and its associated mine operation(s), and upon lessee's and the operator's knowledge of past mining operations associated with the lease, there have been no reportable quantities of hazardous substances per 40 CFR 302.4 or used oil (*as per Utah State Administrative Code R-315-15*), discharged, deposited, or released within the lease, either on the surface or underground, and that all remedial actions necessary have been taken to protect human health and the environment with respect to any such substances. Lessee must additionally provide to lessor a complete list of all hazardous substances and hazardous materials and their Chemical Abstract Services Registry Numbers, and the oil and petroleum products used or stored on, or delivered to, the lease. Such disclosure will be in addition to any other disclosure required by law or agreement. If there has been a release prior to the time application is made for the relinquishment of all or a portion of the leased area, the lessee shall provide to the Authorized Officer, at lessee's expense, a Phase II, American Society for Testing and Materials (ASTM) Environmental Site Assessment (E1903-97; 2002 or latest version), or an equivalent report (as determined by the Authorized Officer), documenting existing site conditions. Prior to the submission of the Phase II

Environmental Site Assessment, the lessee shall provide a proposed work plan, including a schedule, for such Site Assessment to the Authorized Officer. Upon approval of the work plan by the Authorized Officer the lessee shall complete the Site Assessment. To the extent the Authorized Officer determines that further investigation of existing site conditions is necessary prior to relinquishment acceptance, the lessee shall be responsible for such further assessment.

**10. Noxious/Invasive Weeds:** The lessee/operator shall annually inspect active and inactive operational areas on each lease for noxious weeds (that are listed for control by the State of Utah, the Utah BLM, and Uintah County) and for invasive weed species. If any of the listed weeds are found, control must be initiated by the lessee. The lessee should contact the Weed Control official at the Vernal Filed Office in advance to discuss the planned control method (lessees are required to obtain a permit prior to the control through the application of approved herbicides). The lessee should chemically treat annual invasive weeds (such as cheatgrass) in areas of high activity so as to prevent the potential of fire on the site and buildup of fire potential. A plan shall be submitted and approved by the AO prior to the initiation of any control of weeds.

**11. Temporary Cessation:** Prior to any cessation of operations (this does not include normally scheduled days off and holidays), the lessee shall notify the AO 5 days in advance in order to conduct an inspection of the mine or drilling operations. Prior to a continuation of work, the lessee shall notify the AO of work that is to resume.

**12. Top Soil Removal:** The lessee shall remove at least 3 inches of soil prior to construction and windrow it in an area away from the activities. The wind rows shall not be higher than 5 feet high for the disturbed area where the mine site activities will be located. The windrows (both for the road and mine site area shall be seeded during the fall season with a seed mix approved by the Authorized Officer. The seed bed shall be properly prepared and the seed shall be covered after application. If the seed mix is broadcast then it shall be doubled.

**13. As-Built Drawings:** The lessee shall submit an as-built drawing to the BLM Authorized Officer within 90 after surface facility construction is completed.

**Appeal Rights-** You have 30 days to appeal this approval to the Board of Land Appeals, Office of the Secretary, in accordance with the regulation at 43 CFR Part 4 and Form 1842-1 (enclosed). If an appeal is taken, your notice of appeal must be filed in this office within 30 days following the date of this approval. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition pursuant to regulation 43 CFR 4.21 (58 FR 4939, January 19, 1993) for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and the petition for a stay must also be submitted to the Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

#### Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

- (1) The relative harm to the parties if the stay is granted or denied,
- (2) The likelihood of the appellant's success on the merits,
- (3) The likelihood of immediate and irreparable harm if the stay is not granted, and
- (4) Whether the public interest favors granting the stay.

For further information contact Mr. Stan Perkes, (801) 539-4036.

Sincerely,



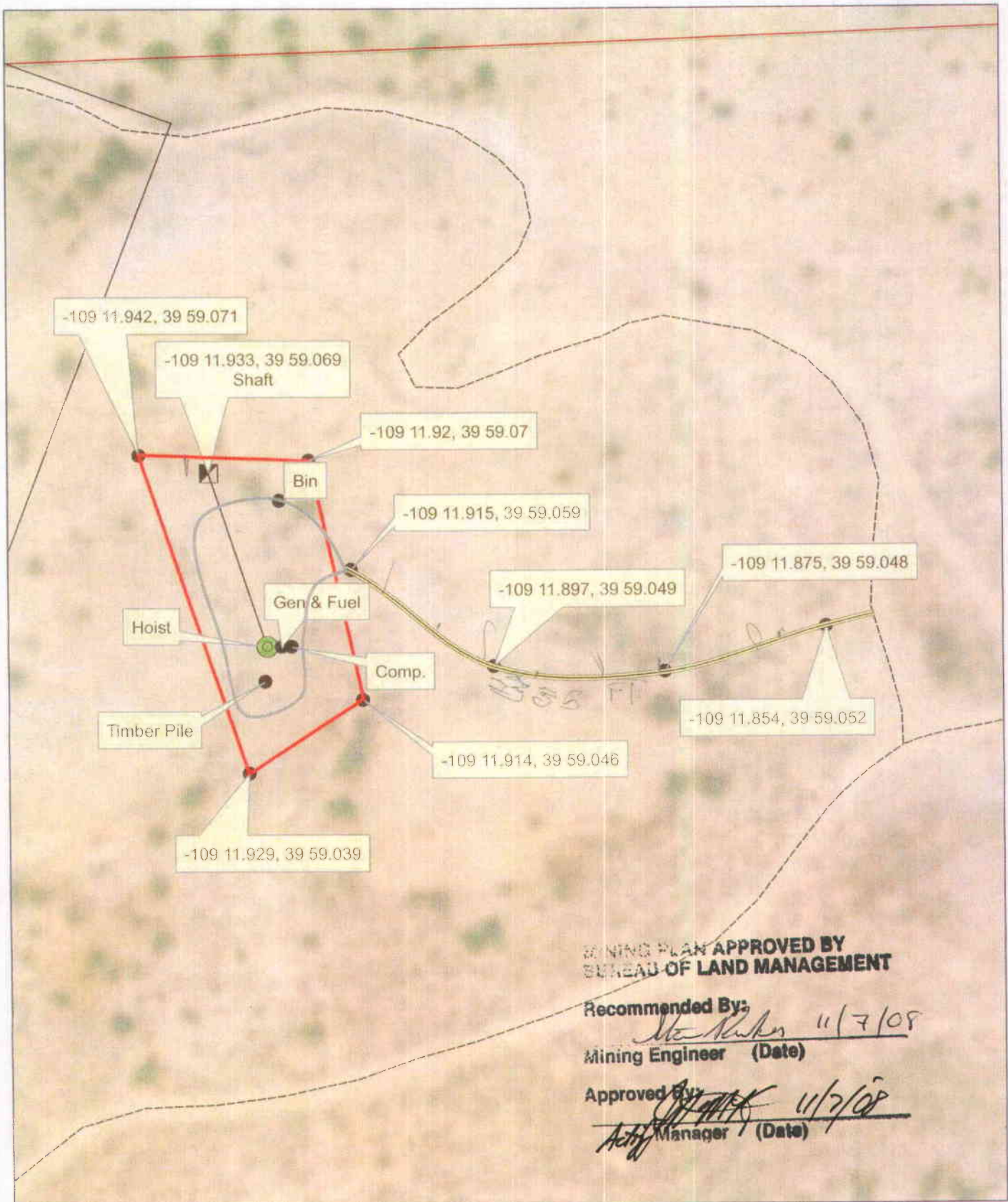
J. D. McKenzie  
Acting Chief, Branch Solid Minerals

Enclosure

1. Map

bcc: Central Files  
Vernal Field Office  
Utah Division of Oil, Gas, and Mining (Attn. Leslie Heppler, 1594 West North Temple, P.O. Box 145801, Salt Lake City, Utah, 84114-5801)

SPerkes:sa:11/07/08:Mine Files/Ziegler/TT#4 Shaft mining plan approval 10 23 2008



**U.S. Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment UT- USO-09-001  
November 7, 2008**

**Tom Taylor #4 Shaft Mining Plan Modification  
Federal Gilsonite Lease UTU-0122694  
(T. 10 S. R. 24 E. Section 3, Lot 2 )**

***Location:*** T. 10 S., R. 24 E., Section 3, Lot 2, SLBM  
***Applicant/Address:*** Ziegler Chemical and Mineral Corporation  
Star Route  
Vernal, Utah 87078

U.S. DEPARTMENT OF INTERIOR  
BUREAU OF LAND MANAGEMENT  
Utah State Office  
200 South 420 West  
Salt Lake City, UAT84101-1345  
(801) 539-4036 Fax: (801) 539-4060





# **CHAPTER 1**

## **INTRODUCTION AND NEED FOR THE PROPOSED ACTION**

### **INTRODUCTION**

Ziegler Chemical and Mineral Corporation (Ziegler) holds the rights to the Federal Gilsonite Lease U -0122694 located on T. 10 S., R. 24 E., Section 3, Lots 1 & 2, SLBM. Mining on this lease has been conducted for many years and Zeigler proposes a modification of the existing mining plan. At the present time mining has ceased in the #3 shaft due to a number of considerations primarily ground water and weak rock that collapses into the mine. Ziegler Chemical and Mineral Corporation have requested a modification to their Mining Plan to open a new shaft up on the NW portion of the vein. All the facilities at the present location would be moved to the new location. Ziegler would conduct a drilling program that includes two vertical drill holes to verify underground conditions prior to mining.

### **NEED FOR THE PROPOSED ACTION**

At the present time the Tom Taylor #3 shaft is shutdown because there is water and weak rock that collapses in the mining area. Ziegler has chosen to move operations to the NW of their existing site.

### **CONFORMANCE WITH BLM LAND USE PLAN(S)**

The proposed action would be in conformance with the Book Cliffs Resource Management Plan (BCRMP) approved in 1984. The plan states on page 17, Table 2-1, "Gilsonite would be leased while other resource values would be protected or mitigated". The leases were readjusted under the BCRMP on February 1, 2004.

The proposed mine plan modification approval also would be in conformance with the recently completed Vernal RMP (October 2008). The Vernal RMP is consistent with the gilsonite decision in the Book Cliffs Resource Management Plan (BCRMP). On Page 98 of the Record of Decision (ROD) for the Vernal RMP the Leasable Minerals (MLE) Gilsonite and Phosphate decision, **MLE-1**, states:

"36,846 acres along 172 miles of Gilsonite veins will be available for prospecting, leasing, and development of Gilsonite (additional veins located through field study or prospecting not shown on Figure 9a will also be available if such are within "open" category lands)."

The proposed operations are in "open" category lands.

## **RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS**

Gilsonite mining is in accordance with The Mineral Leasing Act of 1920 as amended and the regulations at 43 CFR 3590 – Mining Plans. This action also would require a mining/reclamation permit modification under the State of Utah regulatory program (R647). The Alternatives in the EA are consistent with the Vernal RMP (October 2008).

1. Other NEPA documents that are relevant to the proposed operations include:
  - a. Environmental Assessment for Ziegler Chemical and Mineral Corporation's Tom Taylor Gilsonite Mine Shaft #3, Uintah County, Utah, EA No. 1997-21
  - b. Bureau of Land Management Programmatic Environmental Impact Statement for vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, ROD September 2007.
  - c. Vernal Record of Decision and Approved Research Management Plan, October 2008

BLM would incorporate relevant mitigating measures and procedures from these documents into the proposed mine plan modification decision.

## **CHAPTER 2 DESCRIPTION OF ALTERNATIVES**

### **INTRODUCTION**

This EA focuses on the Proposed and No Action Alternatives. Another alternative that was considered but eliminated from analysis is to move the location of the shaft. Potential locations are limited due to the fact that most of the area has been under mined. Mining through previously mined areas creates stability problems and introduces safety risks. In open or mined out areas it is prudent to avoid mining through old workings. Analysis of an alternate location is not necessary because impacts from mining at the proposed location can be adequately mitigated.

The lease allows for the mining of the gilsonite, therefore the No Action Alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

## PROPOSED ACTION

The proposed action is to move the existing facilities and begin mining approximately 1000 feet to the NW of the current Tom Taylor #3 shaft (Federal Gilsonite Lease UTU-0122694 – T 10 S., R. 24 E, Section 3, Lots 1 & 2, Uintah County, Utah). The facilities at the new site would include a hoist house with a diesel powered hoist, head frame for the shaft, a diesel generator, ore bins and a suction system to bring the ore to the surface. These are typical mine facilities for gilsonite mining. The amount of disturbance would be less than one acre. Reclamation would begin on the Tom Taylor #3 Shaft location so the amount of disturbance at one time would be less than ½ acre. The proposed action may include use of herbicides. Only herbicides approved in the Record of Decision for the Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, and the Standard Operating Procedures, Prevention Measures, and Mitigation Measures that are applicable to this project area would be used under the proposed mine plan approval .

This approval would be in-place until all the economic gilsonite is mined out of this part of the vein. This could take up to 20 years.

The following conditions of approval for other resources are already in the mining plan.

1. Archeological Findings: The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials and contact the Authorized Officer (AO) and the Vernal (Green River ) District Manager. Within 5 working days the VDM will inform the operator as to:

Whether the material appear eligible for the National Register of Historic Places.

The mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary).

A time frame for the VDM to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the VDM are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The VDM will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the VDM that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. Waste Rock. Waste rock will be stored in such a manner as to prevent escape of the material by wind and erosion.
3. Gilsonite Retention: A method of gilsonite retention shall be constructed on the low side of the shaft and ore bin to contain any gilsonite particle movement by rain waters. This can be constructed from straw bales or other suitable materials. Any method of retention must be maintained. Material that is retained must be cleaned up as part of the reclamation effort.
4. Reclamation: All reclamation shall be in accordance with the reclamation plan. If there is a conflict between the plan and the stipulations, the stipulations will prevail.
  - a. Concrete Seals. Final designs shall be submitted and reviewed by BLM prior to seal construction. The collar and other structures shall be removed. The final concrete seal over openings that penetrate the surface must conform to the following:
    - i. Bed Rock – If the seal is to be in an exposed rock outcrop, the top of the seal shall be constructed as to conform with the contour of the outcrop as to blend in the surround rock out crop. The bottom of the seal shall sit on bedrock.
    - ii. Soil Area-If the seal is to be in an area where soil will cover the shaft seal, the top of the seal shall be placed in bedrock a minimum of 2 feet below the top of the reclaimed soil.
    - iii. Other – Upon abandonment, all equipment shall be removed and all contours shall approximate the original contour except for the main road which shall be left in-place. All waste rock shall be dumped into the shaft or contoured if there is sufficient top soil to cover the rock. All material in retention ponds shall be removed. The stockpiled topsoil shall be spread and a seeding plan shall be submitted and approved by the AO prior to finalizing reclamation. All materials left in the mine shall be reported to the “AO prior to removal of the ability to descend down the shaft via the hoist and bucket.
5. Ground Water. Should groundwater be encountered of greater than 5 gallons per hour in the subsurface during the mining of Gilsonite, Ziegler shall contact the mining Engineer at the Utah State Office (801-539-4036) and the Vernal District Office hydrologist or Geologist (801[435] 784-4400) within 24 hours of the ground water flow and report the following conditions.
  - a. True vertical encountered depth.
  - b. Subsurface location at which it was encountered
  - c. The approximate flow rate into the mine
  - d. Association of flow with any major geologic features such as a fault or fracture surface.

Based upon this information, the AO will determine if the lessee will be required to monitor the effect of the flow into the mine on any nearby wildlife, or stock wells. If such well are affected, the AO may require the lessee to supply replacement water to the affected stock or wildlife ponds.

All groundwater flows shall be sampled and analyzed for major cations, anions, total dissolved solids, pH, and total suspended solids. Besides these analyses the lessee shall follow the rules and regulations of the State of Utah pertaining to the sampling parameters for pollutants and surface effluent discharges from the proposed gilsonite mine (Utah Administrative Code, August 4, 1995, T 317-1.2: General Requirements: R317-8.3: Application Requirements (for a UPDES Permit: R317-6-2: Ground Water Quality Standards). Results from these analyses and sampling parameters for pollutants as required by the State of Utah shall be proved to the 'Vernal District Office Hydrologist (Vernal District Office, 170 South, 500 East, Vernal, Utah, 84078) and Utah State office, Mining Engineer (P.O. Box 45155, Salt Lake City, Utah 84145-0155) within 30 working days of encountering the water.

### **NO ACTION**

The No Action Alternative would disallow the facilities to move and since there is no other substantial option for placement of facilities, the lessee would not be allowed to exercise his rights under the existing federal lease. BLM's authority to implement the No Action Alternative may be limited because Federal Gilsonite leases allow for the extraction of the Solid Minerals. This would cause a violation of lease terms and conditions and the lessee may seek financial restitution in a court of law. The lease is almost mined out so if this action was to be chosen then full reclamation in lieu of partial reclamation would commence immediately.

## **CHAPTER 3 AFFECTED ENVIRONMENT**

### **INTRODUCTION AND GENERAL SETTING**

Ziegler Chemical and Mineral Corporation hold the rights to the Federal Gilsonite Lease U -0122694 located on T. 10 S., R. 24 E., Section 3, Lots 1 & 2, SLBM. Mining on this lease has been conducted for many years. Mining first began in the Tom Taylor #3 shaft in 1968. It was again approved in 1997 and operated until June 2008.

The vegetative cover of the mine site is dominated by sagebrush, rabbitbrush, and juniper. The mean annual temperature is 47.8 degrees F. The mean annual precipitation 9.17 inches with May and October being the wettest months and February and December the driest. The terrain is steep and rugged. The surface mainly consists of the Uinta Sandstone and the Little Emma (Uinta Lode) gilsonite vein runs North 56 degrees West and is about 24 inches wide at the surface. The area is drained by a dry wash into the White River via Wagon Hound Canyon. The project area is included in Antelope Herd Unit 7, but in the vicinity of the project area it is too steep and irregular for pronghorn. Based on the previous EA, unique farmlands, floodplains, wetland/riparian zones, wild and scenic rivers and wilderness do not occur in the vicinity of the project.

In Appendix A, the Interdisciplinary Team Analysis Record Checklist, provides a brief description of the affected environment of both the Proposed Action and the No Action Alternatives. The affected environment of the Proposed Action and No Action Alternatives was considered and analyzed by an interdisciplinary team as documented in the Interdisciplinary Team Analysis Record Checklist, Appendix A. The checklist indicates which resources of concern are either not present in the project area, would not be impacted to a degree that requires detailed analysis or could potentially be impacted and require further analysis. Based on the Interdisciplinary Team Analysis Record Checklist the only resources that require further analysis are air quality and soils. The affected environment for air quality and soils are described below.

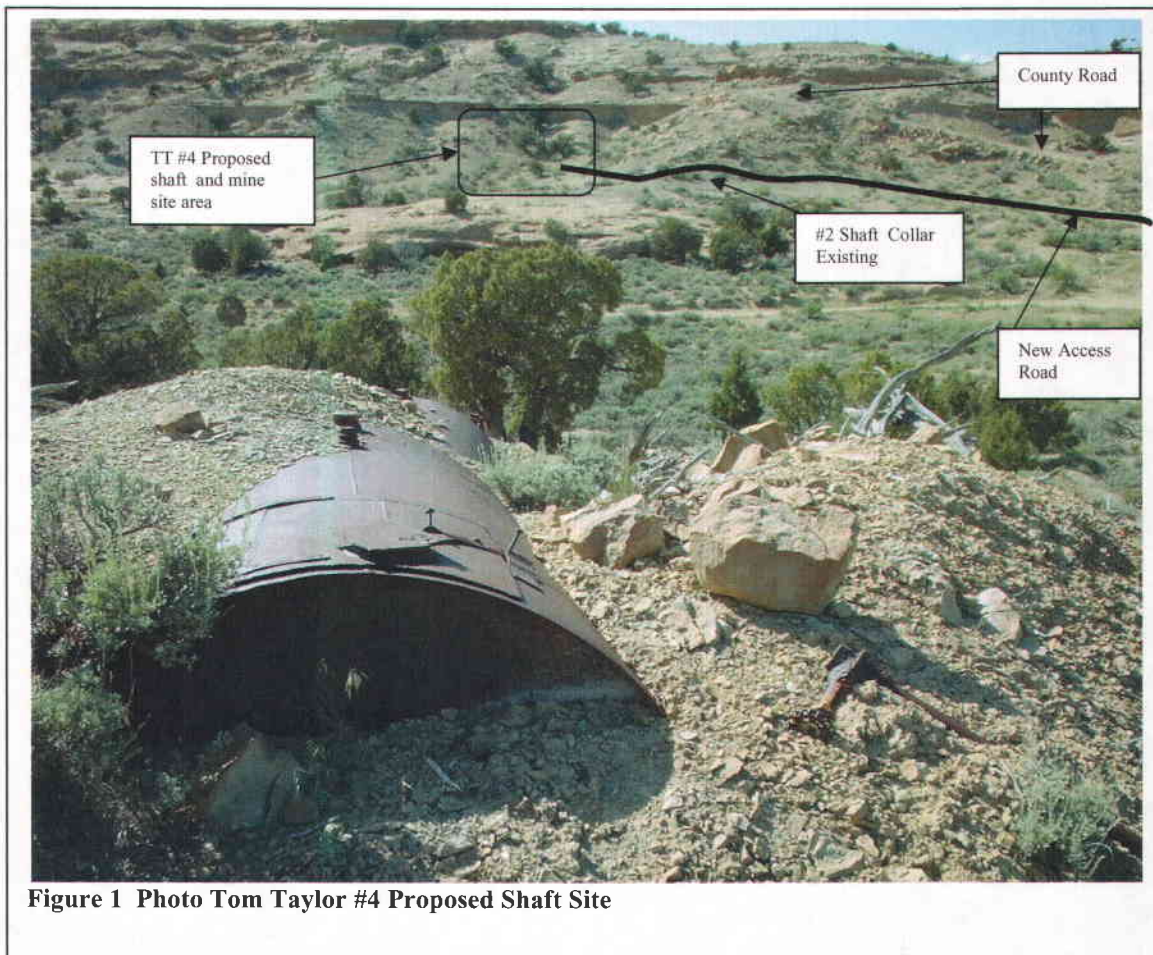


Figure 1 Photo Tom Taylor #4 Proposed Shaft Site



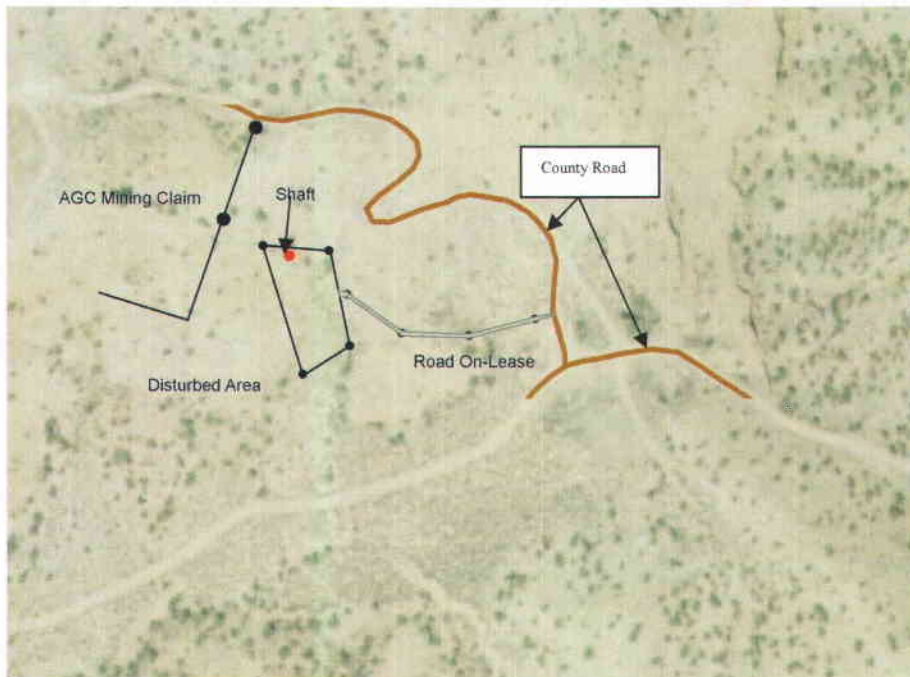


Figure 2 Map of site

#### Resource A: Air Quality

Section 3.2 of the Vernal Proposed RMP/Final EIS describes ambient air quality in the vicinity of the proposed mining operations. This information is incorporated by reference. The proposed mine area is located in a region designated as unclassifiable for PM<sub>10</sub> and unclassifiable/attainment for all other airborne pollutants.

#### Resource B: Soils

The soils in the area of T. 10 S., R. 24 E, Sec 3, Lot 2, SLBM have been designated as Badland-Walknolls-Rock outcrop complex, 50 to 90 percent slopes

A—0 to 3 inches; very channery loam

Bk1—3 to 7 inches; very channery loam

Bk2—7 to 16 inches; extremely channery sandy loam

R—16 to 20 inches; unweathered bedrock

The project area is about ½ of an acre including the road. This will be disturbed in the project.

## CHAPTER 4 ENVIRONMENTAL IMPACTS

### DIRECT AND INDIRECT IMPACTS

This EA is tiered to the following documents for the following reasons:

- a. Environmental Assessment for Ziegler Chemical and Mineral Corporation's Tom Taylor Gilsonite Mine Shaft #3, Uintah County, Utah, EA No. 1997-21. BLM's approval will tier to the decision for this document and apply the stipulations that were brought forward from the analysis.
- b. Bureau of Land Management Programmatic Environmental Impact Statement for vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, ROD September 2007. BLM's decision will tier the decision for this document for approval of herbicides for use in the proposed mining operation.

## **PROPOSED ACTION**

This section analyzes the impacts of the proposed action to those resources described in the affected environment Section 3 above.

### **Resource A: Air Quality**

The air surrounding the mine could be affected by the following:

1. Mine vacuum system that moves the gilsonite from the working area to the surface.
2. Generator that will power all the equipment at the mine. This will be powered by a diesel engine.
3. Gilsonite spillage. This can be at the point of transfer to the truck or spillage from the truck.
4. Dust generated from the vehicles traveling on the dirt road.

The proposed mine plan includes the following mitigation measures for air quality:

1. The proposed mine plan commits to use Mikropul filters on the vacuum system that would remove the gilsonite from the mine to the surface. The Mikropul filters normally are rated at 99.8% effective for a 10 micron or larger dust particle. This is already mitigated in the mine plan and therefore does not need to be addressed further.
2. The generator would be a commercial product and there would be a minor amount of air degradation due to the exhaust of the system. Exhaust from vehicles also would be a minor source of emissions. However, the same or similar generator and vehicles that were used in the past at the Tom Taylor #3 site would be used in the future at the Tom Taylor #4 site and no increases in emissions are expected. Emissions would continue to be minimal and no additional mitigation is required.
3. The mine plan states that the trucks would have covers on them to avoid any spillage or gilsonite dust blowing from the trucks. It is standard practice to have a fabric chute to connect the gilsonite ore bins to the trucks so that gilsonite dust is not generated by the transfer of the ore from the bins to the

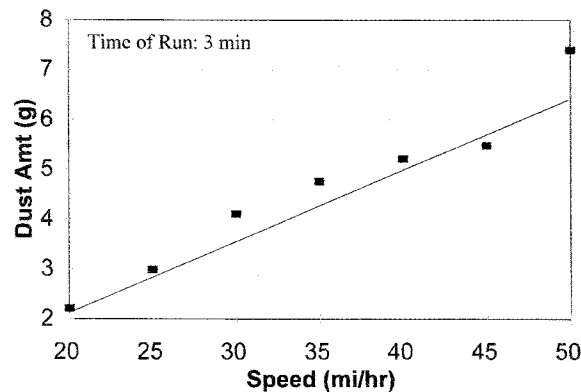


trucks. Because, of this mitigating measure, gilsonite dust emissions would not increase and not further mitigation is required.

4. The travel distance to the paved road from the Tom Taylor #4 minesite is approximately 8050 feet. Approximately 685 feet of unimproved road and 350 feet of new disturbed road would be used to connect the Tom Taylor #3 mine site to the Tom Taylor #4 mine site. The proposal does not include an increase in traffic. The destination point for traffic would be approximately 1025 feet further with 350 feet of new unimproved road. There would be an average of 6 round trips per day (4 days per week) made to the minesite. The workers would make two trips (one up and one back or one round trip); the supervisor would do the same and the ore haulage trucks would make two round trips or 4 single trips.

The speed of the vehicles is critical in dust generation. In a study "Road Dust Suppressants: A Win Win Solution", Thomas G. Sanders P.E., PHD, DEE, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado found that there is a linear relationship between speed and the amount of dust that is generated on an unimproved road. In other words the faster a vehicle travels the more dust it would generate. When a vehicle was operated at 45 mph for 3 minutes the amount of dust generated was 5.6 grams. When operated at 20 mph for 3 minutes the amount generated was about 2.2 grams.

### Dust Generation as Function of Speed for Three Minutes, all data



Source: "Road Dust Suppressants: A Win Win Solution", by Thomas G. Sanders P.E., PHD, DEE, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado  
[www.minexpo.com/Presentations/sanders.pdf](http://www.minexpo.com/Presentations/sanders.pdf)

AMT-Amount in grams  
mi/hr-miles per hour

Due to the steepness and roughness of the road to the proposed mine site, vehicles generally could not travel over 20 mph. The ore haulage trucks could not travel over 15 mph because the road is steep and haul trucks would go uphill unloaded and downhill loaded. The number of mining related trips per day would be the same as in the past. Because of the low frequency of trips anticipated and the expected slow speed of vehicles, the amount of dust generated would be small. Therefore, increases in fugitive dust in the air would be minimal.

### **Resource B: Soil**

The proposed action would disturb soil due to road construction and mine site development. If soils were not removed and stockpiled they would be subject to wind and water erosion. However the following mitigating measures from BLM EA No. 1997-21 would be applied:

The lessee shall remove at least 3 inches of soil prior to construction and windrow it in an area away from the activities. The wind rows shall not be higher than 5 feet high for the disturbed area where the mine site activities would be located. The windrows (both for the road and mine site area shall be seeded during the fall season with a seed mix approved by the Authorized Officer. The seed bed shall be properly prepared and the seed shall be covered after application. If the seed mix is broadcast then it shall be doubled.

After the mining is complete soil would be replaced on the disturbed areas and reseeded. Road berms also would be the reseeded to prevent spread of weeds. With these measures there would be only negligible increases in soil erosion and loss.

### **NO ACTION**

The no-action alternative would not meet the need for the proposed action. It is analyzed as a baseline for comparison with the impacts of the proposed action. The lease grants the rights to mine gilsonite. Because there are no other feasible places on the lease to place the shaft and the surface facilities, no action would mean that mining could not take place and the benefits of mining including generation of revenue would be foregone. If the no-action alternative were chosen the company would have the right to seek compensation in a court of competent jurisdiction for relief.

**Resource A: Air Quality**

There would be no impacts to Air Quality from the proposed activity because there would be no operation. The localized minor increases in fugitive dust expected in the vicinity of the proposed operation would be avoided but other activities such as oil and gas development would continue to impact air quality in the Uinta Basin.

**Resource B: Soils**

There negligible increases in soil erosion anticipated with the proposed action would be avoided because there would be no gilsonite mining operation on the lease.

**CUMULATIVE IMPACTS**

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. The movement of the mine facilities from the Tom Taylor #3 Shaft location to the #4 location would cause minimal, localized short-term increases in fugitive dust and soil erosion. Because impacts can be mitigated there would be no long term cumulative impacts due to the project. The short-term impacts would be negligible due to the minimal size of the disturbance, the low frequency of traffic to the site and the mitigation measures that would be required. Cumulative impacts on air quality soils and other resources from other activities are analyzed in Section 4.23 of the BLM Vernal Proposed RMP/Final EIS, 2008.

**CHAPTER 5****PERSONS, GROUPS, AND AGENCIES CONSULTED**

During preparation of the EA, the public was notified of the proposed action by posting on the Utah Internet Homepage on 15 October 2008. No one has contacted BLM in response to the notice. A public comment period was not offered because very little interest in the proposal has been expressed. BLM offered a comment period for the original Tom Taylor #3 Shaft EA but no comments received.

**Table 5.1. List of Persons, Agencies and Organizations Consulted**

<b>Name</b>	<b>Purpose &amp; Authorities for Consultation or Coordination</b>	<b>Findings &amp; Conclusions</b>
Ziegler Chemical and Mineral Corporation	Mining Plan submittal, 43 CFR 3590	Mine plan revision

**List of Preparers**

**Table 5.2. List of Preparers**

**BLM Preparers**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
<b>Stan Perkes</b>	<b>Mining Engineer</b>	<b>All sections</b>
<b>Clayton Newberry</b>	<b>Botanist</b>	<b>IDTR checklist for Plants and T&amp;E Species</b>
<b>Brandon McDonald</b>	<b>Wildlife Biologist</b>	<b>IDTR checklist for Wildlife and T&amp;E Species</b>
<b>Blaine Phillips</b>	<b>Archeologist</b>	<b>IDTR checklist for Archeology and Tribal Consultation</b>
<b>Robin Hansen</b>	<b>Geologist</b>	<b>IDTR checklist for Paleontology</b>
<b>Mark Wimmer</b>	<b>NEPA Coordinator</b>	<b>IDTR checklist</b>
<b>Chuck Patterson</b>	<b>Recreation Specialist</b>	<b>IDTR checklist for Recreation</b>

**Non-BLM Preparers**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Bob Davis	Superintendent, Ziegler Chemical and Mineral Corporation	Description of proposed action and coordinates of disturbed area and road location

# INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST

**Project Title:** Tom Taylor #4 Shaft

**NEPA Log Number:** UT-USO-09-001

**File/Serial Number:** UTU-0122694

**Project Leader:** Stan Perkes

**DETERMINATION OF STAFF:** (Choose one of the following abbreviated options for the left column)

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for significant impact analyzed in detail in the EA; or identified in a DNA as requiring further analysis

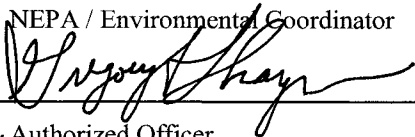

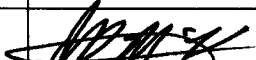
NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section C of the DNA form.

Determination	Resource	Rationale for Determination*	Signature	Date
PI	Air Quality	These were covered by the original 1997 EA: The air lift system contains Mikropul Filters that removes the gilsonite dust during mining. These filters normally remove 99.8% of dust particles greater than 10 microns. The gilsonite truck would be equipped with a cover to keep gilsonite from spilling on the road. Dust generation from truck traffic is a new issue.	Stan Perkes	10/29/2008
NP	Areas of Critical Environmental Concern	According to the BCRA and GIS data base there are no ACEC's present in the mining area	Stan Perkes	10/30/2008
NP	Potential Areas of Critical Environmental Concern	Checked the BLM GIS data base layer and there were no Potential Areas of Critical Environmental Concern present	Stan Perkes	10/30/2008
NI	Cultural Resources	There are no cultural resource sites located in the project area. However, three isolated finds were found during the cultural field survey. None of the isolated finds were determined to be eligible for listing on the National Register of Historic Places. This determination is based upon the consultant's Report date September 3, 2008	Blaine Phillips	10/30/2008
NP	Environmental Justice	The proposed actions would not create disproportionately high and adverse human health impacts or environmental effects on minority or low-income populations in the area as there are no minority or low-income populations in the project area.	Mark Wimmer	10/24/2008
NP	Farmlands (Prime or Unique)	All prime or unique farm lands in the Uintah Basin must be irrigated to be considered under this designation, among other factors. No irrigated lands are located in the proposed action area; therefore this resource will not be carried forward for analysis.	Mark Wimmer	10/24/2008
NP	Floodplains	There are no Flood Plains in this area based on site visitation	Clayton Newberry	10/15/2008
NI	Invasive, Non-native Species	Invasive species can be introduced during the mining and during the reclamation. A modification to the plan (April 2004) Ziegler has committed to prevent the establishment of noxious weed varieties. Standard Stipulations placed on the mining plan approval would help mitigate Invasive and non-native species invasion.	Stan Perkes	10/15/2008

Determination	Resource	Rationale for Determination*	Signature	Date
NP	Native American Religious Concerns	No Concerns based upon the Report date September 3, 2008	Blaine Phillips	10/30/2008
NP	Threatened, Endangered or Candidate Plant Species	Based on a review of the GIS data and personal knowledge from past field visits there are none present.	Clayton Newberry	10/15/2008
NP	Threatened, Endangered or Candidate Animal Species	None present based on a review of the BLM GIS data and field visit.	Brandon McDonald	10/29/2008
NI	Wastes (hazardous or solid)	Mine plan states that less than 10,000 pounds of any chemical from EPA's consolidated list of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) would be used on the mine site. Solid waste would be removed from the site. This was covered in the original 1997 EA	Stan Perkes	10/15/2008
NP	Water Quality (drinking/ground)	Water quality would not be affected. If water is to be discharged then a permit would be needed from the EPA.	Stan Perkes	10/15/2008
NP	Wetlands/Riparian Zones	There are none present based on site visitation.	Clayton Newberry	10/15/2008
NP	Wild and Scenic Rivers	Checked the BLM GIS data layer and there were none present in the lease area.	Stan Perkes	10/15/2008
NP	Wilderness	There are no wilderness areas designated by the U.S. Congress on BLM lands within the Vernal Field Office boundary.	Mark Wimmer	10/24/2008
NI	Rangeland Health Standards and Guidelines	Openings Fenced in the plan meets Stds.	Mark Wimmer	10/30/2008
NP	Livestock Grazing	Little Emma Allotment Land Health Stds. being met.	Mark Wimmer	10/30/2008
NP	Woodland / Forestry	No Resources Present based on onsite visit	Mark Wimmer	10/30/2008
NP	Vegetation including Special Status Plant Species other than FWS candidate or listed species	Based on a review of the GIS data and personal knowledge from past field visits there are non present.	Clayton Newberry	10/15/2008
NP	Fish and Wildlife Including Special Status Species other than FWS candidate or listed species e.g. Migratory birds.	None present based on a review of the BLM GIS data and field visit.	Brandon McDonald	10/29/2008
PI	Soils	Soils would need to be stripped and planted prior to mining and soils would need to be placed back during reclamation. Stipulation would be incorporated into the plan approval	Stan Perkes	10/30/2008
NP	Recreation	No Recreation issues planned	Chuck Patterson	10/30/2008
NI	Visual Resources	Facilities would not be visible from the White River; which is over one mile away with a significant change in vertical elevation difference. This area is designated as a class IV visual area.	Stan Perkes	10/15/2008
NI	Geology / Mineral Resources/Energy Production	Mining plan discusses the plugging of any drill holes would be in accordance to the Authorized Officer.	Stan Perkes	10/29/2008
NP	Paleontology	Based upon a survey completed September 3, 2008 there is no concern	Robin Hansen	10/22/2008
NI	Lands / Access	Access by County Road and on-Lease road. Road on lease would be required to be reclaimed.	Stan Perkes	10/29/2008
NI	Fuels / Fire Management	No issues present based on knowledge of area.	Mark Wimmer	10/30/2008

Determination	Resource	Rationale for Determination*	Signature	Date
NI	Socio-economics	Effects on social and economic values in the project area would likely be minimal due to the size and scope of the project and would not require further analysis.	Mark Wimmer	10/24/2008
NI	Wild Horses and Burros	The proposed action area lies in the Bonanza Herd Area, however; the Book Cliffs Resource Management Plan (1985) did not allocate AUMs in this herd area. Consequently, the area is not being managed for wild horses or burros.	Mark Wimmer	10/27/2008
NP	Wilderness characteristics	Based on a review of BLM GIS data this area does not contain Wilderness Characteristics.	Stan Perkes	10/29/2008

**FINAL REVIEW:**

Reviewer Title	Signature	Date	Comments
NEPA / Environmental Coordinator 	Mark Wimmer	11/4/2008	
 Authorized Officer		11/7/08 11/7/08	

**APPENDIX B**  
**Archeology and Paleontology Clearance**



# SAGEBRUSH CONSULTANTS, L.L.C.

Cultural Resources • Environmental Studies • Historic Preservation



September 3, 2008

Blaine Phillips  
Bureau of Land Management  
Vernal Field Office  
170 South 500 East  
Vernal, Utah 84078

RE: *A Cultural Resource Inventory of the Tom Taylor Mining Project, for Ziegler Chemical and Mining Corporation, Uintah County, Utah.* Sagebrush Consultants Cultural Resource Report No. 1712. BLM Cultural Resource Use Permit No. 07UT54630. Archaeological Survey Permit No. 58. Utah State Antiquities Project No. U-08-SJ-0730b.

Dear Blaine:

This document is a letter report on the cultural resource inventory done for the proposed Tom Taylor Mining Project. In August 2008, the Ziegler Chemical and Mining Corporation requested that Sagebrush Consultants, L.L.C. (Sagebrush), survey a small block area for the Tom Taylor Mining Project, about 3.0 miles southwest of Bonanza, Uintah County, Utah.

The project area is located in T. 10S., R. 24E., Sec. 3 on the USGS 7.5' Quadrangle Southam Canyon, Utah (1968)(Figure 1) and lies on lands managed by the Bureau of Land Management, Vernal Field Office (BLM), Vernal. On August 23, 2008, Sagebrush archaeologists Sandy C. Pagano, Thomas Jones, Michael Terlep, and Allysa Wallin conducted the intensive level cultural resource inventory for this project. The fieldwork was done under the BLM Cultural Resource Use Permit No. 07UT54630 and Archaeological Survey Permit No. 58, issued by the Public Lands Policy Coordination Office, Salt Lake City. It was also done under the auspices of Utah State Antiquities Project No. U-08-SJ-0730b.

Prior to conducting field work, a file search for all previously recorded sites and projects within one mile of the current project area was completed. On August 19, 2008, a GIS file search for this project was conducted by Arie Lecflang with the Antiquities Section, Utah Division of State History, Salt Lake City. Also, on August 19, 2008, Marty Thomas, on behalf of Sagebrush, conducted a literature search of the files at the Utah Division of State History for recorded cultural resource sites and previous projects located within one mile of the current project. The National Register of Historic Places (NRHP) was checked for cultural resources nominated and listed in the vicinity of the current project area. General Land Office (GLO) plat maps were also examined for cultural resources.

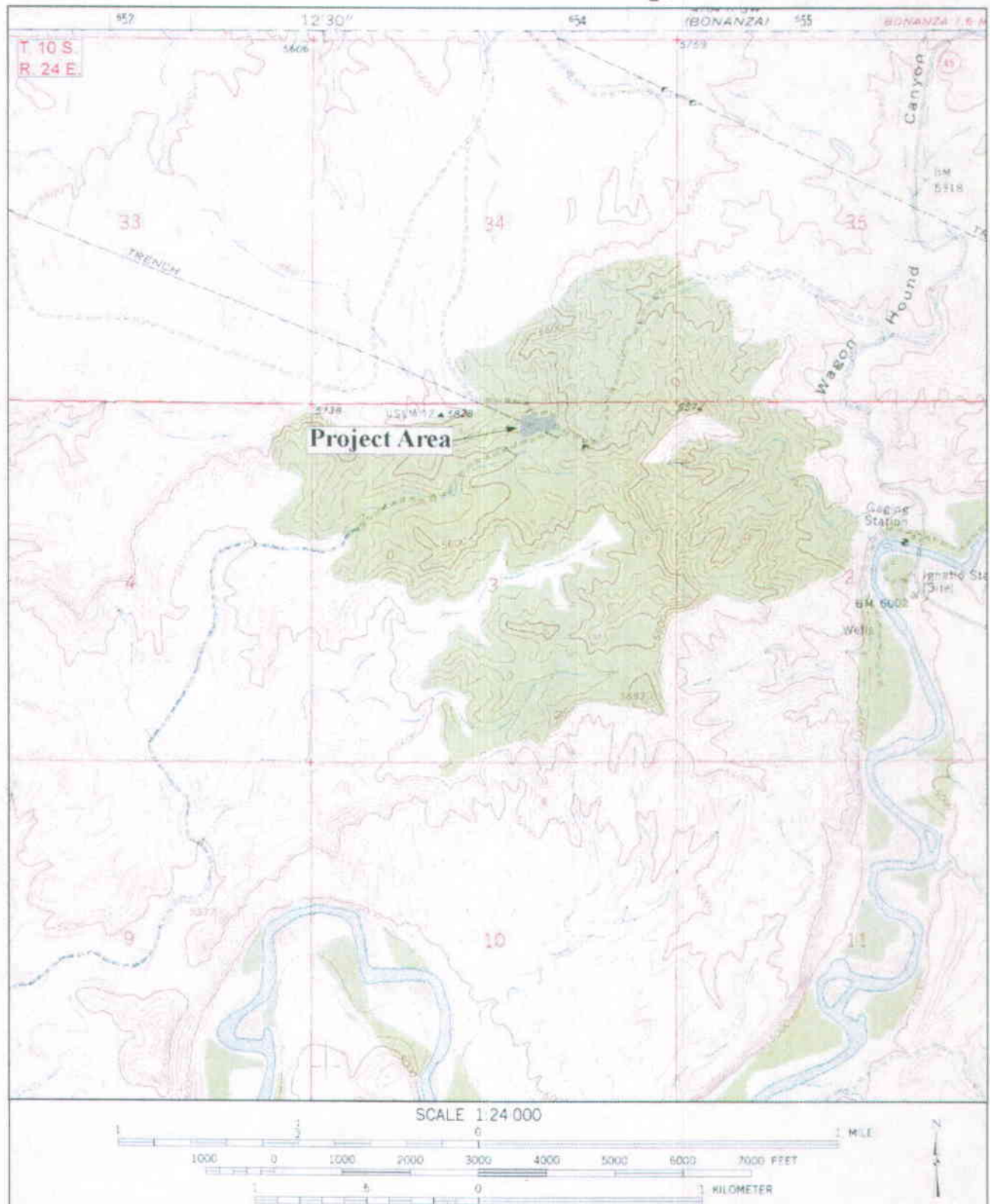


Figure 1. Location of the area surveyed for the Tom Taylor Mining Project. Taken from USGS 7.5' Quadrangle Southam Canyon, Utah (1968).

Many cultural resource inventories have been conducted near the current project area. Due to the large number of projects conducted in this area, their individual descriptions are not listed. However, five cultural resource sites have been identified within one mile of the current project area. Following is a brief description of each of these sites:

**Site 42UN118.** This site is a prehistoric rockshelter habitation site originally recorded by Gunnerson in 1954 and re-recorded in 1974. Extensive vandalism has exposed deep, stratified cultural deposits which may be as much as two meters deep. Materials observed include lenses of charcoal, corn cobs, chipping debris, and charred animal bone. This site has not been evaluated for eligibility to the NRHP.

**Site 42UN354.** This site is a poorly developed rock shelter located just above the road on the south side of the White River. A small amount of lithic debris, a hammerstone, and some fire cracked rock were noted in association with this site. The site had no eligibility recommendation made at the time of its recording in 1974.

**Site 42UN931.** This site, located on a south facing finger ridge, is a prehistoric lithic and ceramic scatter. Artifacts observed at this site include groundstone, two projectile point fragments, a scraper, a chopper, five sherds of Emery Grayware, and approximately 300 lithic flakes, fire-cracked rock and several areas of ashy debris. The site was recommended ELIGIBLE to the NRHP.

**Site 42UN4551.** This site, located on a gentle slope off of a low ridge, is historic campsite and trash scatter associated with Gilsonite mining activity in the area. Artifacts include over 100 tin cans, glass shards, wire nails, baling wire, and a metal fastener found within an area containing a wood chip scatter and a small hearth or campfire. The site was determined NOT eligible for the NRHP.

**Site 42UN4554.** This site, located on a gentle slope off of a low ridge, is a low-density historic trash scatter with a hearth. The scatter, likely associated with nearby Gilsonite mining activity, includes one can, a metal suspender strap fastener, a boot heel, metal screening, and a hearth area. The site was determined NOT eligible for the NRHP.

No other cultural resource sites have been recorded within a mile of the current project area. The NRHP was consulted prior to the commencement of fieldwork and no historic properties are located in the vicinity of the current project area.

The project area lies in the dissected tablelands just north of the White River. Soils in this area are poorly developed and range from extremely sandy to rocky in nature. Sediments consist of very fine grained, buff to tan colored sandy silt which contains a moderate amount of angular gravels and rock fragments of quartzite, mudstone, blocky chert, limestone and sandstone. Erosional features such as desert pavement are common along the terraced ridge



slopes of the area. The elevation of the area surveyed ranges between 5660 and 5680 feet a.s.l. Vegetation is predominantly Pinyon-Juniper and Sagebrush community species. Noted species include halogeton, prickly-pear cactus, ricegrass, greasewood, rabbitbrush, and various other desert species, with the pinyon-juniper stands present at the higher elevation within the area.

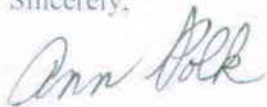
The nearest permanent water source in the area is the White River which is located approximately one mile to the south of the project area. Numerous seasonal drainages and washes are present throughout the general area. Natural disturbance in the area consists of arroyo cutting, sheetwash and aeolian erosion. Cultural disturbance includes livestock grazing, the construction of well pads, pipelines, and access roads; and recreational activity in the area.

The survey area measures approximately 3.5 acres centered on the Little Bonanza Gilsonite Vein. The area was surveyed in parallel transects spaced no more than 15 m (50 ft) apart. No cultural resource sites were found during the survey for the Tom Taylor Mining Project; however, three isolated finds (IF1, IF2, and IF3) were documented in the inventoried area (Figure 2). IF1 is a single brown/white chalcedony uniface. It measures 4.0 cm long by 2.5 cm wide and is 1.6 cm thick. It has a random flaking pattern on one surface. IF2 consists of four tin cans, three of which measure approximately 3 in. diameter and 3½ in. high, while a fourth one is a tobacco tin measuring about 3¼ in. high by 2 in. wide by ¾ in. thick. IF3 is a capped Gilsonite mine opening. The mine shaft is covered by a 24 ft long by 2 ft wide board-formed concrete box covered with a steel grate (Figures 3 and 4). The box is approximately 3 ft 6 in. high. No historic features or artifacts were observed in association with this mine opening, and there was no evidence to indicated when the mine was capped.

The isolated finds identified during this inventory are not associated with any known site and, in-and-of-themselves, are not considered for eligibility to the NRHP. As such, cultural resource clearance is recommended for the proposed project.

This investigation was conducted with techniques which are considered to be adequate for evaluating cultural resources which could be adversely affected by the project. However, should cultural resources be discovered during construction, a report should be made immediately to the BLM Archaeologist in Vernal, Utah.

Sincerely,



Ann S. Polk  
Principal Archaeologist

Attachments

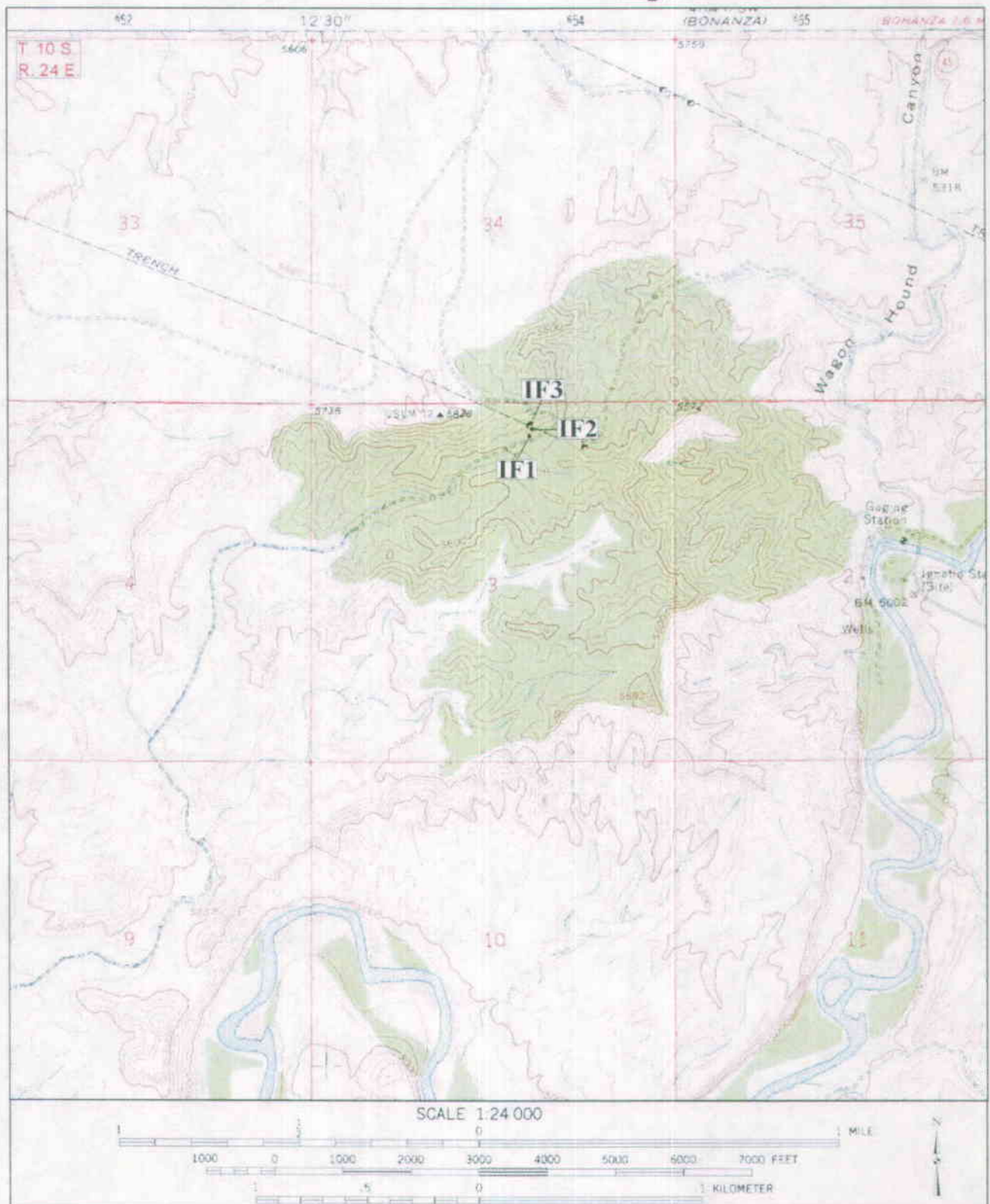


Figure 2. Location of isolated finds IF1, IF2 and IF3. Taken from USGS 7.5' Quadrangle Southam Canyon, Utah (1968).





Figure 3. Project area overview; view to the southwest.



Figure 4. Gilsonite Little Bonanza Vein shaft (IF3); view to the southeast.

## PALEONTOLOGY EVALUATION SHEET

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**PROJECT:** TOM TAYLOR MINING PROJECT

**LOCATION:** Three miles southwest of Bonanza, Utah in the NW ¼ NE ¼ of section 3, T10S, R24E, Uintah County, Utah.

**OWNERSHIP:** PRIV[☒] STATE[ ] BLM[☒] USFS[ ] NPS[ ] IND[ ] MIL[ ] OTHER[ ]

**DATE:** August 21, 2008

**GEOLOGY/TOPOGRAPHY:** Near the bottom of the Uinta Formation, Upper Eocene Age. The area sits on the north side of a saddle with a canyon on the east and head of a draw or canyon to the west. The area slopes south and there is an alluvial cover along the south side of the surveyed area with rock exposures on the north side. Mostly tan sandstones with some gray mudstone layers.

**PALEONTOLOGY SURVEY:** YES [ ☒ ] NO Survey [ ] PARTIAL Survey [ ☒ ]

All the Uinta Formation outcrops in and around the proposed mine area were walked to survey for fossils.

**SURVEY RESULTS:** Invertebrate [ ] Plant [ ] Vertebrate [ ] Trace [ ] No Fossils Found [ ☒ ]

No vertebrate fossils were observed during the survey. Some layers have numerous invertebrate burrows, but these are not of significant importance.

**PALEONTOLOGY SENSITIVITY:** HIGH [ ] MEDIUM [ ☒ ] LOW [ ] (PROJECT SPECIFIC)

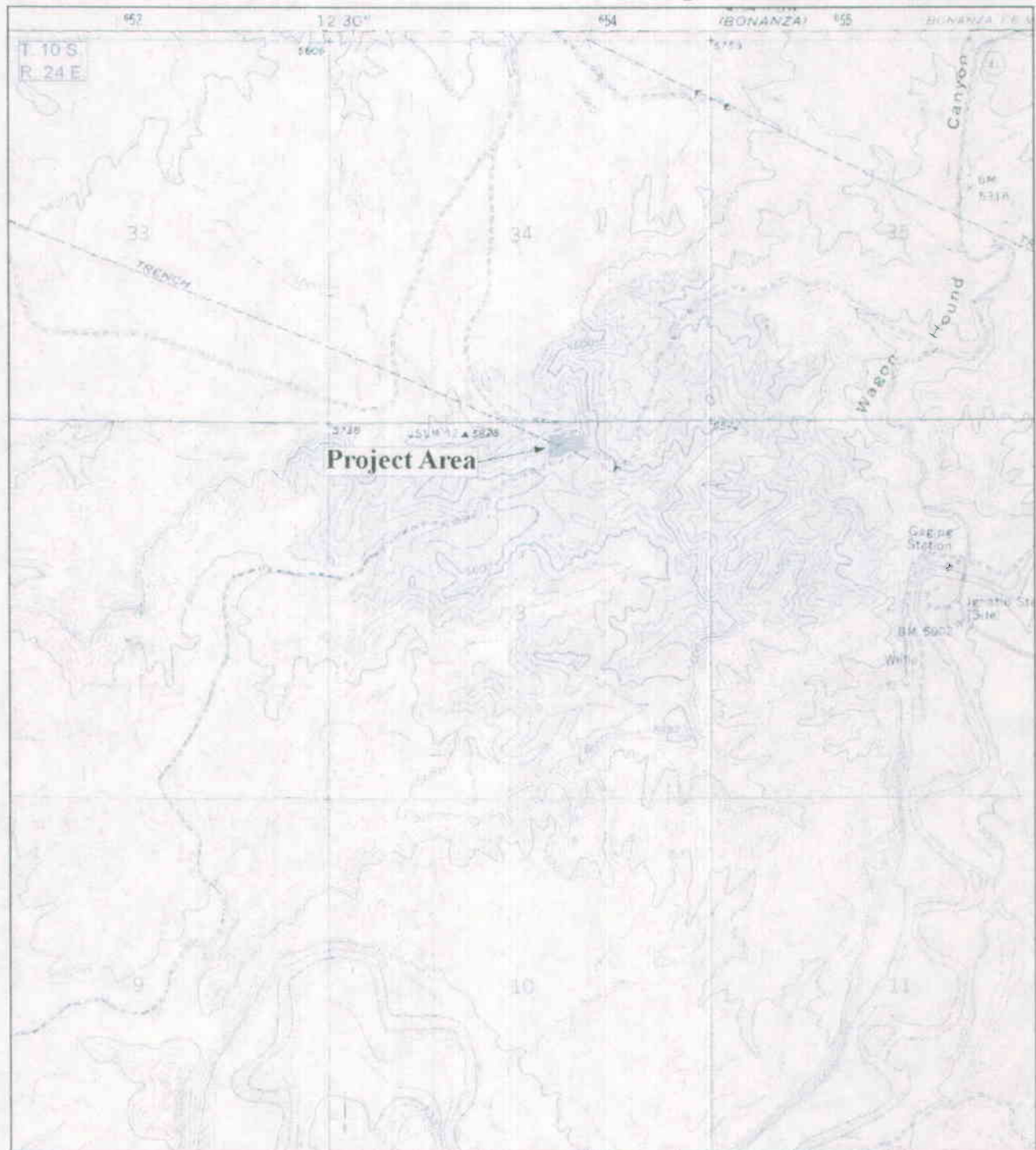
**MITIGATION RECOMMENDATIONS:** NONE [ ☒ ] OTHER [ ] (SEE BELOW)

No recommendations are being made for this project.

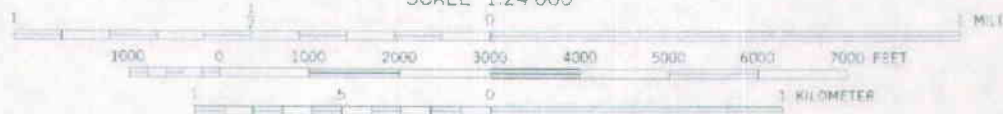
There is always some potential for discovery of significant paleontological resources in the Uinta Formation. If significant vertebrate fossils (mammals, crocodiles, complete turtle shells, fish, etc.) are encountered during construction, work should stop in that area and a paleontologist contacted to evaluate the material discovered.

**PALEONTOLOGIST:** Alden H. Hamblin

*A.H. Hamblin Paleontological Consulting, 3793 N. Minersville Highway, Cedar City, Utah 84720 (435) 867-8355*  
Utah State Paleontological Permit # 07-355, BLM paleontological Resources Permit # UT08-003C,  
Utah Professional Geologist License - 5223011-2250.



SCALE 1:24 000



Location of the survey area for the Tom Taylor Mining Project. Taken from USGS 7.5' Quadrangle Southam Canyon, Utah (1968).